I claim:

1. A filter for oxidizing and removing impurities from water, the filter comprising:

a tank having an upper end and a lower end, an opening at the upper end, and a cavity for receiving a filter resin;

an air injector coupled to the opening of the tank, the air injector having an air source inlet for coupling to a regulated air source, an air source outlet in communication with the air source inlet, the air source outlet opening into the upper end of the tank;

a vent , the vent having a vent inlet and a vent outlet in communication with the vent inlet, the vent inlet opening into the upper end of the tank;

an unfiltered water inlet for coupling to a source of unfiltered water, the unfiltered water inlet in fluid communication with the upper end of the tank for introducing unfiltered water into the tank;

a stand pipe having an upper pipe end and a lower pipe end, the stand pipe located in the tank with the lower pipe end extending into the lower end of the tank; and

a filtered water outlet in fluid communication with the upper end of the stand pipe, whereby air and unfiltered water are introduced into the upper end of the tank and the water is aerated in the tank.

2. The filter of claim 1, wherein the air injector is an air injector adaptor, the air injector adaptor having a shut off valve for opening and closing the vent.

3. The filter of claim 2, wherein the shut off valve is a float having an upper end for sealing engagement with the vent inlet.

4. The filter of claim 3, wherein the air injector adaptor includes a lower side and a bore extending through the lower side and opening into the upper end of the tank, the bore defining an end wall, the vent inlet being located at the end wall, the float includes a lower end, the upper end in slidable engagement within the bore, the float being capable of sliding between an upper position and a lower position, wherein in the upper position the upper end of the float is in sealing engagement with the vent inlet, the bore having a side wall which includes a longitudinally extending channel which opens to the bore, the channel is in communication with the upper end of the tank and the air source inlet, the channel is in communication with the vent inlet when the float valve is not in the upper position.

5. The filter of claim 4, wherein the float includes a side and a notch is located on the side near the upper end of the float, the adaptor includes a hole which is located adjacent the upper end of the bore, a pin is located in the hole and extends into the bore and into the notch, whereby the pin limits the movement of the float valve between the upper and lower positions.

6. The filter of claim 5, wherein the lower end of the float valve includes a weight.

7. The filter of claim 2, further comprising a check valve coupled to the air source inlet of the adaptor, the check valve allowing flow only in the direction into the adaptor, an air pump coupled to the check valve, means for activating the air pump whenever there is flow of unfiltered water into the tank, and means for activating the air pump during backwash.

8. The filter of claim 2, further comprising a check valve coupled to the air source inlet of the adaptor, the check valve allowing flow only in the direction into the adaptor, an air pump coupled to the check valve, means for activating the air pump whenever a well pump is on, and means for activating the air pump during backwash.

9. The filter of claim 2, further comprising a valve controller, the valve controller is coupled to the adaptor, the valve controller having the unfiltered water inlet and the filtered water outlet, and having an unfiltered water outlet in fluid communication with the unfiltered water inlet

and a filtered water inlet in fluid communication with the filtered water outlet, the adaptor having an unfiltered water inlet and an unfiltered water outlet in fluid communication with the unfiltered water inlet of the adaptor, the adaptor unfiltered water inlet coupled to the unfiltered water outlet of the control valve and the unfiltered water outlet opening into the upper end of the tank, the adaptor further having a filtered water inlet and a filtered water outlet in communication with the filtered water inlet of the adaptor, the adaptor filtered water outlet coupled to the filtered water inlet of the control valve and the adaptor filtered water inlet coupled to the upper end of the stand pipe.

10. An air injector adaptor for coupling between an oxidizing filter tank and a valve controller, the filter tank having an upper end and a lower end, an opening at the upper end, a cavity for receiving a filter resin, a stand pipe having an upper pipe end and a lower pipe end, the stand pipe located in the tank with the lower pipe end extending into the lower end of the tank, the valve controller having an unfiltered water inlet, an unfiltered water outlet in fluid communication with the unfiltered water inlet, a filtered water outlet, and a filtered water inlet in fluid communication with the filtered water outlet, the air injector adaptor comprising:

an unfiltered water inlet adapted for coupling to the unfiltered water outlet of the valve controller;

an unfiltered water outlet in fluid communication with the unfiltered water inlet of the adaptor, the adaptor unfiltered water outlet adapted for coupling to the opening at the upper end of the tank;

a filtered water inlet adapted for coupling to the upper end of the stand pipe;

a filtered water outlet in communication with the filtered water inlet of the adaptor, the adaptor filtered water outlet adapted for coupling to the filtered water inlet of the control valve;

an air source inlet adapted for coupling to a regulated air source;

an air source outlet in communication with the air source inlet and adapted for opening into the upper end of the tank; and

a vent , the vent having a vent inlet and a vent outlet in communication with the vent inlet, the vent inlet opening into the upper end of the tank.

11. The air injector adapter of claim 10, further comprising a shut off valve for opening and closing the vent.

12. The air injector adapter of claim 11, wherein the shut off valve is a float valve having an upper end for sealing engagement with the vent inlet.

13. The air injector adapter of claim 12, wherein the air injector adaptor includes a lower side and a bore extending through the lower side and adapted for opening into the upper end of the tank, the bore defining an end wall, the vent inlet being located at the end wall, the float valve includes a lower end, the upper end in slidable engagement within the bore, the float being capable of sliding between an upper position and a lower position, wherein in the upper position the upper end of the float is in sealing engagement with the vent inlet, the bore having a side wall which includes a longitudinally extending channel which opens to the bore, the channel is in communication with the air source inlet and is adapted for communication with the upper end of the tank, the channel is in communication with the vent inlet when the float valve is not in the upper position.

14. The air injector adapter of claim 13, wherein the float includes a side and a notch is located on the side near the upper end of the float, the adaptor includes a hole which is located adjacent the upper end of the bore, a pin is located in the hole and extends into the bore and into the notch, whereby the pin limits the movement of the float valve between the upper and lower positions.

15. The air injector adapter of claim 14, wherein the lower end of the float includes a weight and the upper end of the float includes a rubber plug.

16. The air injector adapter of claim 11, further comprising a check valve coupled to the air source inlet of the adaptor, the check valve allowing flow only in the direction into the adaptor.

17. The air injector adapter of claim 14, wherein the unfiltered water outlet and the filtered water inlet of the adaptor are located at the lower side of the adaptor, and the unfiltered water inlet and the filtered water outlet of the adaptor are located at an upper side of the adaptor, whereby the adapter is easily coupled to the filter tank and the valve controller is readily coupled to the adaptor.

18. The air injector adaptor of claim 17, further comprising an upper rim at the upper side of the adaptor and a lower rim at the lower side of the adaptor, whereby the adaptor is secured to the tank via the lower rim and a clamp, and the adaptor is secured to the control valve via the upper rim and a clamp.

19. A method of aeration in an oxidizing filter system, the method comprising the steps of:

injecting air into an upper portion of a filter tank, bypassing a valve controller of the filter system;

injecting unfiltered water into the head of air in the upper portion of the filter tank to aerate the unfiltered water and to replace filtered water drawn from the tank;

drawing the aerated unfiltered water through a filter media so as to filter the unfiltered water; and

providing the aerated filtered water on demand.

20. The method of claim 19, wherein the step of injecting air further comprises injecting air on a continuous basis, whereby dissolved oxygen in the air in the upper portion of the tank is held at a constant high level.

21. The method of claim 19, further comprising the step of injecting air into the upper portion of the filter tank during a back wash cycle.

22. The method of claim 19, wherein the step of injecting unfiltered water is carried out by spraying the unfiltered water into a head of air located over the water in the tank, whereby air bubbles travel down into the water from the force of the water flow rate causing additional aeration.

23. The method of claim 19, wherein the step of injecting air is based on the system pressure.

24. The method of claim 19, wherein the step of injecting air is based on when a well pump is operated.

25. The method of claim 19, wherein the step of injecting air is based on a water demand.

26. The method of claim 19, further comprising the step of venting oxygen depleted air from the upper portion of the filter tank.

27. The method of claim 19, further comprising the step of venting excess air from the upper portion of the filter tank.

28. The method of claim 19, further comprising the step of detecting a drop in the level of water in the filter tank from a normal level; and venting air from the upper portion of the filter tank until the level of water returns to the normal level.

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